

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION

SRAM CORPORATION,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	06 C 1025
	)	
	)	07 C 1565
FORMULA S.R.L. and PERIGEUM	)	
DEVELOPMENT, INC. d/b/a FORMULA	)	
BRAKE USA,	)	
	)	
Defendants.	)	

**MEMORANDUM OPINION**

CHARLES P. KOCORAS, District Judge:

This matter comes before the court on the parties’ requests for a construction of disputed terms within the claims of two patents. The terms at issue are construed as set forth below.

**BACKGROUND**

This case pertains to patents for two inventions: U.S. Patent No. 6,957,534, for a reach adjustment mechanism for a master cylinder lever of a hydraulic disc brake (“the ‘534 patent”) and U.S. Patent No. 7,178,646, for a master cylinder lever for a hydraulic disc brake having a backpack reservoir (“the ‘646 patent”). The inventor for both inventions is Wayne Lumpkin; Lumpkin has extensive experience in designing

bicycle components, including brake systems. Plaintiff SRAM Corporation is the current owner of the rights contained within the ‘534 and ‘646 patents.

According to SRAM’s submissions, early hydraulic bicycle brakes presented several problems for riders and manufacturers. Levers could be used only on either the left or the right handlebar; they were not interchangeable. Hydraulic chambers had to be set in particular orientations in order to work properly. Rider-specific positioning of the hand brake lever, particularly the initial positioning of the lever when the rider is applying no pressure (known as “reach”) and the position of the lever at which the brake will engage and begin to slow the bicycle, could not be achieved independently. Instead, adjustment of one setting could adversely affect the other. The inventions for which Lumpkin obtained the ‘534 and ‘646 patents were intended to address these shortcomings in previous brake systems.

Defendant Formula s.r.l., an Italian corporation, manufactures hydraulic bicycle brakes.<sup>1</sup> In its complaint in Case No. 06 C 1025, SRAM asserts that Formula has infringed claims 19-21 of the ‘534 patent. In its complaint in Case No. 07 C 1565, SRAM contends that Formula has infringed claims 1, 3, 4, 9-12, and 18-21 of the ‘646 patent. Formula now requests that we construe certain terms used within the patents.

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<sup>1</sup>Defendant Perigeum Development, Inc. is Formula’s U.S. affiliate and distributor.

## LEGAL STANDARD

Patent claims are construed as a matter of law. *See Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372, 116 S. Ct. 1384, 1387 (1996). In general, claim terms are given the meaning they would have to a person of ordinary skill in the art at the time of the effective filing date of the application for the patent involved. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc). To determine what a person of ordinary skill would understand the term to mean at the operative time, a court first considers the language of the claims themselves, the patent's specification, and the history of the patent's prosecution before the Patent and Trademark Office ("PTO")—the intrinsic evidence. *See Unique Concepts v. Brown*, 939 F.2d 1558, 1561 (Fed. Cir. 1991). The intrinsic evidence forms the public record of what the patentee claimed, and the public is entitled to rely upon this record first and foremost to delineate the patent's scope. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996).

In construing a particular claim term, a court must look first to the language of the claim or claims in which the term appears. *Phillips*, 415 F.3d at 1314. It provides a significant amount of information of the meaning of particular terms through context and relationship to other claims, whether asserted or unasserted. *Id.* Because the use of particular terms is usually consistent, use of a term in one claim of the patent can

provide insight into its meaning when it is used elsewhere as well. *Id.* The language of the claims is further illuminated by the specification; it is both highly relevant to and often dispositive of the meaning of a disputed term. *Id.* at 1315. However, the specification is not without pitfalls; limitations found within it cannot be read into claims that do not contain the same limitations. *See Golight, Inc. v. Wal-Mart Stores*, 355 F.3d 1327, 1331 (Fed. Cir. 2004). A patentee can also attach a meaning to a term other than its ordinary and customary meaning, but he or she must do so in the written description or prosecution history with “reasonable clarity, deliberateness, and precision.” *Id.* at 1332. The final piece of the intrinsic evidence of a term’s meaning is the prosecution history. It may shed light on the definition of a disputed term and must be consulted to determine whether the patentee gave a special meaning to a term or disclaimed certain aspects of the invention in the course of obtaining PTO approval. *See generally id.* at 1331-33.

All other indications of a patent term’s meaning derive from so-called extrinsic evidence, such as dictionaries, learned treatises, and expert and inventor testimony. Because extrinsic evidence is not necessarily available to the public as part of the patent record, it should only be relied upon in situations where the terms of a patent are still ambiguous after an examination of the intrinsic evidence. *Phillips*, 415 F.3d at 1317-

19. Whatever extrinsic sources are consulted, they must not be allowed to contradict claim language that is unambiguously set forth in the intrinsic evidence. *Id.* at 1324.

With these principles in mind, we begin our examination of the disputed terms.

## DISCUSSION

### A. The ‘534 Patent

The relevant portions of the disputed claims follow, with terms presented for construction underlined.

19. A master cylinder for a bicycle hydraulic disc brake, the master cylinder comprising:

...

a piston having a seal between the cylinder and the piston, the seal having a leading seal edge, the leading seal edge being movable relative to the port opening to vary a dead band distance between the leading seal edge and the port opening with the piston in an unactuated position;

a one piece lever pivotably associated with the housing and operatively associated with the piston for moving for [sic] piston within the cylinder between an unactuated and an actuated position as the lever is actuated between a rest position and an actuated position;

a reach adjustment operatively associated with the lever for varying the rest position of the lever relative to the master cylinder housing independent of movement of the leading seal edge relative to the hole as the reach adjustment varies the rest position of the lever.

20. A method of varying a reach of a lever actuated bicycle hydraulic disc brake master cylinder, the disc brake master cylinder having a housing defining a cylinder and a port, a piston received in the cylinder, the piston having a seal between the piston and the cylinder wherein the distance between a leading edge of the seal and the port defines

a dead band, the lever being one piece and being operatively associated with the piston, the dead band being variable independent of lever movement, the method comprising:  
varying the reach of the one-piece lever; and  
maintaining a select dead band as the reach of the one-piece lever is varied.

21. A master cylinder for a bicycle hydraulic disc brake, the master cylinder comprising:

...

a piston received in the cylinder having a seal operatively associated therewith, the seal having a leading edge, the leading seal edge being moveable between a select starting position with the leading seal edge between the first end and the port opening with the leading seal edge a select distance from the port opening and a pressurized position with the leading seal edge between the port opening and the second end, the leading seal edge preventing fluid flow between the cylinder and the reservoir when positioned between the port opening and the second end to pressurize the second end;

a one piece lever pivotably attached to the housing, the lever being associated with the piston to move the piston between the select starting position and the pressurized position as the lever is pivoted between the rest position and a fully actuated position;

reach adjustment means operatively associated with the lever for varying the rest position of the lever with respect to the housing independently of movement of the select distance between the port opening and the leading seal edge; and

dead band adjustment means operatively associated with the piston for moving the leading seal edge to adjust the select distance between the port opening and the leading seal edge without varying the rest position of the lever.

### 1. “One Piece Lever”

As demonstrated above, various iterations of the phrase “one-piece lever” appear in claims 19 and 21 to indicate a lever that is operatively associated with a piston inside a master cylinder. The lever engages the brake by moving between a rest position and

an actuated position. According to SRAM, this term does not need to be construed. Formula disagrees and argues that the term means “a lever consisting of only one piece.”

As SRAM points out, the phrase “consisting of” has special meaning when used in a patent: It excludes any unrecited claim element and the reach of a claim using the term is correspondingly very narrow. *See CIAS, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1360-61 (Fed. Cir. 2007). The ill-considered use of this phrase within a patent claim can have drastic consequences for the scope of the protection afforded to the inventor. *See Immunocept, LLC v. Fulbright & Jaworski, LLP*, 504 F.3d 1281, 1283 (Fed. Cir. 2007). Consequently, it would be inappropriate to import such a limitation into the claim in the course of litigation when neither the inventor nor the patent examiner deemed it necessary to do so.

Formula also proposes that we construe the term “one piece” to mean “only one piece” but does not offer any persuasive reason why the additional word is necessary. Formula’s arguments appear more directed toward a determination of whether specific levers can be considered to be made of one piece or not. Our task at this point of the litigation is to construe the meaning of the claims as a matter of law, not to apply those meanings in particular contexts. *See, e.g., Cybor Corp. v. FAS Technologies, Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998). Accordingly, we conclude that the term “one piece”

as used in these two claims is not in need of greater elaboration for purposes of claim construction. *See Biotec Biologische Naturverpackungen v. Biocorp, Inc.*, 249 F.3d 1341, 1349 (Fed. Cir. 2001).

## 2. “Dead Band Distance”

Formula argues that this term should be construed based on the definition of “dead band” found in the section of the patent that discusses the background art. That definition provides that dead band is the travel between the start position of the piston and the timing port. SRAM, by contrast, points to the other end of the patent document, where claims 19 and 20 specify that “the distance between a leading edge of the seal and the port defines a dead band.” Thus, the parties do not disagree that the dead band ends at the timing port; they part company with regard to where the dead band begins and how its length is shortened.

According to Formula, the start of the dead band is dependent on the starting position of the piston. As the piston moves up the chamber, the dead band correspondingly contracts. As the piston moves back toward the other end of the chamber, the dead band expands, reaching its maximum distance when the lever returns to its rest position. Formula contends that axial movement of the piston and the seal connected to it is required, so other types of movement, specifically rotational movement of the seal to adjust the starting point of the dead band, should not fall within



this term as construed. In support of its assertion that the invention does not contemplate rotational movement of the seal, Formula points to discussion within the specification regarding the need to minimize rotation of the piston to prevent the integrity of the seal from being impaired or compromised. Col. 6, ll. 65-67; Col. 9, ll. 61-63.

SRAM insists that the mention of piston movement within the discussion of the background art is a generalized description of the term “dead band” and that the patent provides other descriptions that culminate in the definitions found within the claims themselves. A review of the specification reveals no fewer than five explanations of the term dead band or dead band distance, some of which refer to it in terms of the piston and some of which refer to it in terms of the seal. According to SRAM, the claims are the most appropriate place to look to decide which of these explanations defines the scope of the invention.

After considering the context of the instances in which the term appears, we conclude that SRAM’s construction is the more accurate. Formula’s assertion that SRAM disclaimed rotational movement of the piston is unpersuasive. The language to which they point appears in the description of the preferred embodiment, not within the summary of the invention or some other portion of the patent document referring to the invention as a whole. A description of a preferred embodiment does not necessarily

exclude other embodiments that satisfy the requirements set forth in the patent claims. *See, e.g., Phillips*, 415 F.3d at 1323.

The cases Formula cites in its supplemental memorandum in support of its argument do not mandate a different outcome. In one, the inventor expressly disclaimed the aspect that was later asserted to be within the invention's scope. *Safetcare Mfg., Inc. v. Tele-Made, Inc.*, 497 F.3d 1262, 1270-71 (Fed. Cir. 2007). In another, the Federal Circuit noted that inclusion of a feature of an invention in the general description of the invention as a whole accompanied by emphasis on the inferiority of products without that feature was tantamount to an express disavowal of the feature. *Astrazeneca AB v. Mutual Pharmaceutical Co.*, 384 F.3d 1333, 1340 (Fed. Cir. 2004). Neither of these scenarios is present in this case. The language upon which Formula relies in the '534 patent does not evince an intention to disclaim or a criticism of a system including rotation of the seal. The phrasing to which Formula points is most consistent with a description of an embodiment that does not include rotation of the piston or seal, making it preferable over other embodiments that include the rotational feature that could present problems for the integrity of the seal. Moreover, unlike the language disputed in *Astrazeneca*, it appears in the description of the preferred embodiment, not the general summary of the invention as a whole.

Formula also cites a third case: *Motionless Keyboard Co. v. Microsoft Corp.*, 486 F.3d 1376, 1380 (Fed. Cir. 2007). However, the portion of the case to which they direct our attention stands for the unremarkable proposition that a court will not construe a claim term broadly if the language of the claim, when read in the context of the specification, will not support the asserted breadth. In the case at bar, the specification does not counsel against an interpretation of dead band that is broad enough to include rotation of the seal. Rather, as discussed above, the language upon which Formula relies addresses the preferred embodiment, which does not prevent the patent as a whole from having a broader application.

Correspondingly, we construe the term “dead band” as the space within the cylinder before the leading edge of the seal engages and then passes the timing port, thus pressurizing the hydraulic fluid and engaging the brake.

### 3. “*Being Moveable*” and “*Movement*”

Formula’s arguments regarding these two terms flow from the previous argument that the invention involves only axial travel of the piston and the seal rather than including other possibilities such as rotational movement. For the same reasons stated in our construction of the term “dead band,” we are not of the opinion that axial movement is the sole kind included within the invention at issue.

The fact that movement in the abstract can happen in an infinite number of directions or ways does not counsel a different result. Formula’s position that we must

consider any kind of movement to be within the scope of the invention if we do not restrict it to axial movement ignores the fact that patent claims must always remain grounded in the broader context provided by the document as a whole. Here, we are convinced that not all kinds of movement or moveability are at issue, but types that will allow a hydraulic brake to operate in the way described in the '534 patent are fairly within the scope of the patent's claims, including rotational movement.

#### 4. *"Leading Seal Edge"*

Formula proposes a construction of this term to mean the edge of the seal that leads the travel of the piston from the first end of the cylinder toward the second end of the cylinder and that passes the timing port during that travel. Relying upon inferences drawn from a claim where the term does not appear, Formula's construction rests on its assertion that the piston can move only in an axial direction within the cylinder and that the seal can only move in lockstep with the piston. Formula's construction also assumes a seal for which all points of the circumference are equidistant from the second end of the cylinder, so the entirety of the seal would lead the piston assembly during travel from the first end of the cylinder to the second end.

SRAM contends that the term refers to the forward edge of the seal that interacts with the timing port such that the movement of hydraulic fluid into the reservoir is cut off, causing pressurization within the chamber and actuating the brake system. This

construction focuses not on whether the edge of the seal leads the piston's movement but instead on the movement of the seal edge with regard to the timing port, independent of whether the position of the piston vis-à-vis the timing port also changes. The term appears in the context of three claims involving adjustment of the dead band, a system that is dependent on the relationship of the seal and the timing port. The claim on which Formula relies (claim 13)<sup>2</sup>, by contrast, addresses actuation of the brake, a process that is dependent upon the movement of the entire piston through pressure on the brake lever, taking the piston assembly through a much larger portion of the cylinder to create differing amounts of force within the braking system and therefore a greater degree of slowing of the bicycle overall. SRAM's construction is more closely rooted in the context that a person skilled in the art would use to determine the meaning of this term, making it the more suitable of the parties' advanced positions. Accordingly, we construe the term "leading seal edge" to mean the forward edge of the radial seal that interacts with the timing port.

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<sup>2</sup>In pertinent part, claim 13 reads as follows: "A master cylinder for a hydraulic disc brake, the master cylinder comprising: a housing defining a cylinder, the cylinder having a first and second end;...a piston received in the cylinder having a radial seal, the piston being movable between a select starting position with the seal between the first end and the port opening with the seal a select distance from the port opening and a pressurized position with the seal between the port opening and the second end, the radial seal preventing fluid flow between the cylinder and the reservoir when positioned between the port opening and the second end to pressurize the second end;...[and a] dead band adjustment means operatively associated with the piston for moving the radial seal to adjust the select distance between the port opening and the seal...."

## 5. “*Variable*”

With regard to this term, as was the case for “dead band” and “moveable/movement,” Formula urges that the dead band can be varied only through axial movement of the piston. For the reasons stated above on the related arguments, we do not perceive that limitation to be included within this claim term. Rather, there is no need to look beyond the plain meaning of the term: capable of being modified, altered, or changed.

## 6. “*Dead Band Adjustment Means*”

Both parties agree that the language “dead band adjustment means operatively associated with the piston for moving the leading seal edge to adjust the select distance between the port opening and the leading seal edge without varying the rest position of the lever” is a means-plus-function claim governed by 35 U.S.C. § 112 ¶ 6.<sup>3</sup> Construction of a means-plus-function claim takes place in two stages: first, identification of the function; second, determination of the structure that corresponds to and performs the identified function. *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1321-22 (Fed. Cir. 2004). When alternative structures are described, each

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<sup>3</sup>Paragraph 6 of § 112 provides that “[a]n element in a claim for a combination may be expressed as a means...for performing a specified function without the recital of structure...in support thereof, and such claim shall be construed to cover the corresponding structure...described in the specification and equivalents thereof.”

is included within the proper construction of this kind of claim. *Id.* at 1322; *MicroChemical*, 194 F.3d at 1258.

a. Function

SRAM asserts that the function of the dead band adjustment means is unequivocally set out in the language of claim 21, specifically to adjust the select distance between the port opening and the leading seal edge without varying the rest position of the lever. Formula, continuing the train of thought discussed above, insists that the adjustment can only occur through axial movement of the piston. For reasons already elucidated, we are convinced that nothing in claim 21 restricts the movement of the piston axially between the first and second ends of the cylinder when the dead band adjustment means is used. Accordingly, we conclude that the function identified is that stated within the claim itself.

b. Structure

Having identified the function to be performed by the means, we must next determine what structure or structures are disclosed within the specification for adjusting the distance between the port opening and the leading seal edge without varying the rest position of the brake lever. An inventor using a means-plus-function claim is required to link or associate a structure or structures disclosed in the specification to the function described in the claim. *Atmel Corp. v. Information Storage*

*Devices, Inc.*, 198 F.3d 1374, 1382 (Fed. Cir. 1999). The entire specification, viewed from the perspective of one skilled in the art, must be taken into account to determine the appropriate structure, including the drawings and the abstract. *Technology Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1338 (Fed. Cir. 2008); *Default Proof Credit Card System, Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005); *Playtex Products, Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 909 (Fed. Cir. 2005). All structure needed to perform the recited function must be set forth in the specification, but features that do not perform the associated function do not limit the claim. *Asyst Technologies, Inc. v. Empak, Inc.*, 268 F.3d 1364, 1370 (Fed. Cir. 2001); *MicroChemical*, 194 F.3d at 1258. However, the disclosure within the specification limits the scope of the claim to the structure or structures disclosed, together with their equivalents. *Aristocrat Techs. Australia Pty. Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1336 (Fed. Cir. 2008).

There are several references within the specification that pertain to the structure necessary to adjust dead band within the invention. The first appears in the summary of the invention, which discusses an embodiment of the invention in which the structure includes a threaded member engaging the housing at the first end of the cylinder. The member contains a pushrod that moves toward the second end of the cylinder when the member is rotated in one direction and that moves toward the first end of the cylinder



when the member is rotated in the opposite direction. Col. 2, ll. 12-24. The discussion of the preferred embodiment refers to rotation of a knob with a threaded insert that engages with a countersink. This movement of the knob advances the piston in the cylinder. Col. 9, ll. 51-63.

According to the declaration of Robert Sturges, a professor of Mechanical Engineering at Virginia Tech, the structure that corresponds to the dead band adjustment function includes a contact point adjustment knob, a countersink, a pushrod, a piston, and a cup seal. His declaration also refers to numerical labels affixed to these components in Figures 3 and 12. The drawings show a structure containing the knob, pushrod, and countersink in close proximity to one another; the piston is associated with that assemblage. Finally, the cup seal is associated with the piston.

The net effect of this structure is to allow action on the knob to affect the relationship of the pushrod to the countersink, which in turn affects the piston, causing it to move. Movement of the piston causes corresponding movement of the seal, which adjusts the amount of dead band. We emphasize that our view of the structure disclosed is not only that shown in Figures 3 and 12. In the context of this patent document, we perceive these drawings to represent specific versions of the general structure disclosed for adjusting dead band, not the exclusive representations thereof. *Playtex*, 400 F.3d at 909. Consequently, we conclude that claim 21 encompasses the general structure described above as well as its equivalents. *MicroChemical*, 194 F.3d at 1258.

## 7. *“Select Starting Position”*

\_\_\_\_\_Formula argues that this term, as used in claim 21, refers to the start position of the piston, despite the reference to the leading edge of the seal within the same claim. In support of its position, Formula argues that only movement of the piston can affect dead band within the invention at issue and points to several instances within the specification where the term “select starting position” specifically refers to the start position of the piston. However, the use of the terms “select start position,” “start position,” or “starting position” within the specification is not restricted to discussions of the piston; rather, these terms are used numerous times throughout the specification in connection with various components of the brake system. As a result, it is difficult to extrapolate the constant association of this term with a specific component that Formula urges. Instead, this type of use demonstrates that the term is not independently definable but instead relies upon other associated language to convey its full meaning. It also indicates that the inventor knew how to use, and the PTO knew how to approve or disapprove of, different terms to specifically call to mind when specific scenarios were being described. In other words, to know the object whose start position has been selected, we must look at the language surrounding this term.

The term “select starting position” is used twice in claim 21. The first appearance occurs in the context of a description of the positioning of the seal as it moves from its initial position, selected by the rider according to his or her preference,

toward the opening of the timing port. The second instance, by contrast, appears in a discussion of the lever and the effect on the piston when the lever pivots. The latter use pertains to the starting position of the piston; the former, to that of the leading edge of the seal. Thus, we cannot agree with the construction advanced by Formula that “select starting position” always pertains to the starting position of the piston. Rather, the component at issue will differ and must be determined through the context in which it is used. Consequently, we construe this term to mean the position of a particular component, as chosen by the rider.

8. *“Select Distance”*

\_\_\_\_\_The use of this term in claim 21 is related to that of “select starting position.” As demonstrated by the reference within the claim to the leading edge of the seal in conjunction with the term “select distance,” this term refers to the distance between the leading edge of the seal and the opening of the timing port when the seal is at the start position chosen by the rider according to his or her personal preference.

**B. The ‘646 Patent**

With regard to the ‘646 patent, Formula seeks construction of terms appearing in claims 1, 4, 10, 18, and 21, the pertinent portions of which state as follows:

1. A symmetric master cylinder for a bicycle hydraulic disc brake comprising:

a bar clamp attached to a master cylinder housing for attaching the master cylinder housing to a bicycle handlebar along a longitudinal clamp axis;

a cylinder wall associated with the master cylinder housing, the cylinder wall comprising a cylinder interior and a cylinder exterior...

a reservoir for hydraulic fluid comprising a first wall comprising only a limited radial portion of the cylinder exterior and an elastomeric diaphragm, wherein the cylinder axis and the longitudinal clamp axis lie in a plane substantially symmetrically bisecting the first wall;

...

4. The symmetric master cylinder of claim 1 wherein the reservoir further comprises a side wall extending from the first wall, the elastomeric diaphragm being attached to the side wall opposite the first wall.

10. A symmetric master cylinder for a bicycle hydraulic disc brake comprising:

a lever ...

a bar clamp attached to the master cylinder housing for attaching the master cylinder housing to a bicycle handlebar along a longitudinal clamp axis;

a reservoir associated with the master cylinder housing comprising a first wall comprising only a limited radial portion of an exterior surface of a cylinder within the housing and the reservoir further comprising an elastomeric diaphragm, wherein the reservoir is substantially symmetrically bisected by the plane;

...

18. The symmetric master cylinder of claim 10 further comprising the radial portion of the exterior of the cylinder within [sic] the housing comprising the first wall is on a side of the cylinder axis opposite the lever.

21. A symmetric master cylinder comprising:

a bar clamp attached to a master cylinder housing for attaching the master cylinder housing to a bicycle handlebar along a longitudinal clamp axis;

a cylinder wall...

a reservoir for hydraulic fluid comprising a first wall comprising only a radial portion of the cylinder exterior and an elastomeric diaphragm, wherein the cylinder axis and the longitudinal clamp axis lie in a plane substantially symmetrically bisecting the first wall;....

1. “Attached”

\_\_\_\_\_ This term appears in three claims with respect to two different attachments: that of the bar clamp and the master cylinder housing (claims 1 and 21) and that of the elastomeric diaphragm and the side wall of the reservoir (claim 4). Formula contends, largely based upon drawings contained in the patent, that these attachments must be direct, i.e., without any additional components intervening between the two specifically stated as being attached to one another. Although patent figures are undoubtedly pertinent to a determination of an invention’s scope, they are by no means dispositive in every case. *MBO Laboratories, Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007). Despite Formula’s arguments, nothing in the specification requires that either of these attachments be direct. In fact, an example offered by Formula in support of its construction demonstrates an attachment of two components through a third, namely the attachment of the master cylinder to the handlebar via the bar clamp. Claims 1 and 21 describe this configuration as “a bar claim attached to a master cylinder housing for attaching the...housing to a bicycle handlebar.” Formula perceives a functional difference between the phrase “attached to” and “attaching...to” such that the latter would permit an intermediate component but the former would not. However, without a strong indication in the specification that the two forms of the verb “attach” have two different meanings, Formula’s proposed construction cannot stand.

The plain language of claims 1 and 21 indicate that the word “attach” contemplates situations in which the attached components are not in direct contact with each other. Accordingly, we construe the term attached to mean a connection or joining of two components, whether or not the connection involves an intermediate component.

2. “*Master Cylinder Housing*”

\_\_\_\_\_ Formula proposes that this term be construed as meaning a cylinder housing with a first and second end that encloses the piston train assembly and that is connected to the reservoir housing. According to Formula, the reservoir housing and the master cylinder housing are two separate functional components. However, as was the case for several other disputed claim terms, Formula’s interpretation impermissibly attempts to import limitations found in descriptions of preferred embodiments to limit the overall scope of the invention. *See Phillips*, 415 F.3d at 1323. Accordingly, we construe this claim as referring to the housing that contains the master cylinder, regardless of what other components may be included within or connected to that housing.

c. “*Radial*”

Finally, with regard to the term “radial,” the difference in the parties’ positions on the proper construction is somewhat unclear. Formula contends that the term describes something that is “characterized by a protrusion or divergence from a center.” SRAM asserts that the term indicates something that is “arranged like rays or straight

lines or radiating from or converging to a common center.” As an adjective, the word “radial” must describe a characteristic of the noun or noun phrase that it modifies, i.e., the portion of the exterior or exterior surface of the master cylinder. If each of these constructions is interpreted as including a requirement that the action at issue, be it protrusion, divergence, radiation, or convergence, comes from or goes to a center point, there is no practical difference between the two constructions.

If, however, the first phrase of each definition is interpreted as not being tied to a center point, the difference is clear. Under Formula’s definition, any protrusion of the exterior surface would be radial; under SRAM’s definition, any arrangements of rays or straight lines that do not originate from or terminate in a common point would be radial. These positions, particularly when grounded in the context of the larger patent document, are nonsensical. Though the radial portion of the cylinder exterior can certainly protrude into other things, such as the reservoir, that is not the characteristic that makes that portion of the exterior “radial” in nature. Conversely, it is easy to imagine arrangements of straight lines or rays that would not be radial, such as lines that run parallel to each other.

Accordingly, we construe the term “radial” to describe the quality of radiating to or from, diverging from, or converging to a common point.

## CONCLUSION

Based on the foregoing analysis, the disputed terms of U.S. Patent No. 6,957,534, for a reach adjustment mechanism for a master cylinder lever of a hydraulic disc brake (“the ‘534 patent”) and U.S. Patent No. 7,178,646 for a master cylinder lever for a hydraulic disc brake having a backpack reservoir are construed as described.

A handwritten signature in black ink, reading "Charles P. Kocoras". The signature is written in a cursive style with a horizontal line underneath.

Charles P. Kocoras  
United States District Judge

Dated: April 3, 2009